



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,547	03/11/2005	Hideaki Takase	266826USOPCT	7157
22850	7590	04/10/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER BERMAN, SUSAN W	
			ART UNIT	PAPER NUMBER
			1711	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/10/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/10/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

# Office Action Summary

Application No.

10/527,547

Applicant(s)

TAKASE ET AL.

Examiner

Susan W. Berman

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-8 is/are rejected.
- 7) ☒ Claim(s) 2 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/06, 3-05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the term "general" in "general formula" renders the claims indefinite because it is not clear whether applicant intends to claim the formula set forth or other formulas of the same general type. The use of parentheses after each formula to enclose the definitions of components of the formulas render the claims indefinite because it is not clear whether the enclosed definitions are intended to be positive, definite limitations or merely suggested limitations.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (4,959,431) in view of Takeyama et al (4,902,440). Watanabe et al disclose an optical material comprising a copolymer obtained from a trifunctional isocyanurate Component A, an aliphatic bifunctional monomer Component B, and an aromatic copolymerizable monomer Component C. See column 2, lines 50-60, column 5, lines 6-36, column 6, lines 23-58, column 7, line 66, to

Art Unit: 1711

column 8, line 30, column 8, lines 40-58. Component C can be styrene, (meth) acryloxyethoxybenzene or 2,2-bis[4-(methacryloxyethoxy)phenyl]propane. Watanabe et al teach that the isocyanurate monomer and the Component C monomers provide a refractive index of at least 1.53. Examples 7-9 disclose compositions comprising, 2,2-bis[4-(methacryloxyethoxy)phenyl] propane, a dimethacrylate monomer, a styrene monomer, tris(2-acryloxyethyl)isocyanurate and a thermal initiator. Examples 7-9 teach using mixtures of aromatic monomer component C. It would have been obvious to one skilled in the art at the time of the invention to provide a composition comprising tris(2-acryloxyethyl)isocyanurate as Component A, an aliphatic di(meth)acrylate Component B, an initiator and a mixture of Component C monomers, such as (meth) acryloxyethoxybenzene and 2,2-bis[4-(methacryloxyethoxy)phenyl]propane selected from the specific monomers taught by Watanabe et al. The reason is that Watanabe et al provide Examples teaching such combinations including tris(2-acryloxyethyl)isocyanurate and mixtures of the specific monomers taught as examples of Component C. Watanabe et al further teach the properties each different kind of component confers to the resulting copolymer.

Takeyama et al disclose UV curable compositions for coating optical fibers comprising a urethane acrylate blended with tris(2-acryloxyethyl)isocyanurate, an optional diacrylate, a photoinitiator and reactive diluent. See column 3, lines 50-59, column 4, lines 13-16, column 6, lines 16-50. It would have been obvious to one skilled in the art at the time of the invention to employ a photoinitiator, as taught by Takeyama et al in analogous compositions, in the compositions disclosed by Watanabe et al. Takeyama et al provide motivation by teaching that analogous isocyanurate and (meth)acrylate materials are UV curable in the presence of a

Art Unit: 1711

photoinitiator. One of ordinary skill at the time of the invention would have been motivated by a reasonable expectation of successfully employing UV radiation instead of thermal energy to polymerize the compositions disclosed by Watanabe et al. With respect to claim 2, Watanabe et al do not suggest a weight ratio of aromatic difunctional (meth)acrylate to aromatic monofunctional (meth)acrylate. However, It would have been obvious to one skilled in the art at the time of the invention to determine the weight ratio of monomers required to obtain the desired properties in the optical article to be produced. With respect to claim 4, Watanabe et al teach a higher weight percent of Component A (tris(2-acryloxyethyl)isocyanurate) than set forth in the instant claim. However, It would have been obvious to one skilled in the art at the time of the invention to adjust the weight percent of Component A required to obtain the desired properties in the optical article to be produced, in the absence of evidence to the contrary.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 01-299807 in view of Watanabe et al (4,959,431) in view of Takeyama et al (4,902,440), as applied to claim 1 above. JP '807 disclose curable resin compositions for use as a core material in an optical waveguide. The compositions comprise components corresponding to applicant's components A through C, but do not include an isocyanurate monomer. Watanabe et al together with Takeyama et al disclose compositions for optical materials comprising the instantly claimed (meth)acrylate monomers. It would have been obvious to one skilled in the art at the time of the invention to provide a waveguide, as taught by JP '807, from the analogous compositions comprising tris(2-acryloxyethyl)isocyanurate and a photoinitiator taught by Watanabe et al in combination with Takeyama et al. Watanabe et al provide motivation by teaching that the disclosed compositions

Art Unit: 1711

comprising tris(2-acryloxyethyl)isocyanurate have excellent properties, such as highly crosslinked structure, good dyeability, high refractive index, great impact resistance and a small specific gravity. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful waveguide with excellent optical properties.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nurse et al (5,263,111) in view of JP 01-299807 and further in view of Watanabe et al (4,959,431) in view of Takeyama et al (4,902,440), as applied to claims 1 and 7 above. Nurse et al disclose a method for forming an optical waveguide using a photomask and radiation to apply a channel waveguide pattern. Watanabe et al together with Takeyama et al disclose radiation curable compositions for optical materials comprising the instantly claimed (meth)acrylate monomers.

It would have been obvious to one skilled in the art at the time of the invention to employ irradiation via a photomask of the compositions taught by Watanabe et al in view of Takeyama et al and being suitable for forming a waveguide, as taught by JP '807, in the method of patterning a channel waveguide pattern taught by Nurse et al. Nurse et al provide motivation by teaching patterning of a radiation curable composition. JP '807 provides motivation by teaching compositions comprising (meth)acrylate-functional materials corresponding to applicant's components A-C for forming a waveguide. Watanabe et al provide motivation to include tris(2-acryloxyethyl)isocyanurate in the compositions taught by JP '807, as discussed above. Takeyama et al provide motivation to include a photoinitiator in the compositions taught by Watanabe et al, as discussed above. One of ordinary skill in the art at the time of the invention

Art Unit: 1711

would have been motivated by a reasonable expectation of successfully providing a channel waveguide pattern in an optical waveguide using radiation through a photomask, as taught by Nurse et al, and radiation curable compositions corresponding to the instant claim 1 composition, as taught by JP '807, Watanabe et al and Takeyama et al.

### *Conclusion*

Ohba et al [US 2002/0183411 A1] is cited as art of interest. Ohba et al disclose an EB-curable optical fiber coating material comprising (meth)acrylated monomers. The Examples teach nonylphenol EO-modified acrylate reacted with diisocyanate and hydroxy acrylate to provide an acrylated urethane oligomer, which is then mixed with the EO-modified acrylate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SB  
3/30/07



Susan W Berman  
Primary Examiner  
Art Unit 1711